

Key points for test 2: Ch. 13

The list below might not be complete, but without knowing these things you will certainly have problems doing the test.

Basic sing. var. calc. and test 1 knowledge

- $\sin(\pi/3)$, $\cos(\pi/3)$ etc.
- How to sketch lines and curves (ellipses, parabolas, hyperbolas). How to find the equation for a line.
- How to integrate the basic functions, for example x^p , e^x , $\sin x$, $\cos x$.
- How to integrate a little bit more complicated functions using "substitution".
- Be able to recognize hard/impossible integrals.
- How to graph planes, cylinders and quadric surfaces, including shifts.

Double integrals (13.1-4, 13.6)

- Evaluate double integrals (rectangular and polar coordinates).
- Change the order of integration for rectangular and general regions.
- Set-up double integrals over general regions in rectangular coordinates.
- Set-up double integrals in polar coordinates (So you have to know what polar coordinates are and what dA is).
- Be able to recognize the easiest way to evaluate a double integral (change order of integration, polar coordinates).
- Applications: area (integrate 1), average value, volume (integrate height), mass and center of mass of a lamina.

Triple integrals (13.5-7)

- Evaluate triple integrals (rectangular, cylindrical, spherical coordinates).
- Set-up triple integrals over general regions in rectangular coordinates (how to make a projection, recognize the easiest projection).
- Definition of cylindrical and spherical coordinates, and how to graph surfaces in cylindrical and spherical coordinates.
- Set-up triple integrals in cylindrical and spherical coordinates (So you have to know what dV is).
- Applications: average value, volume (integrate 1), mass and center of mass of a solid.

What NOT to know? Things that I didn't discuss during class.

- Moments of inertia (Sec. 13.6).